

PRELIMINARY
GROUNDWATER RESOURCES STUDY

**Carnevale Subdivision
TPM 21133**

Prepared
for
The County of San Diego

January 21, 2009

Prepared by
Lintvedt, McColl & Associates
2810 Camino Del Rio South, Suite 200
San Diego, Ca 92108
(619) 294-4440

RECEIVED
JAN 31 2011
**DEPARTMENT OF PLANNING
AND LAND USE**

TABLE OF CONTENTS

• Introduction	Page 3
• Existing Conditions	Page 3
• Proposed Conditions	Page 3
• Calculations	Page 4
• Conclusions	Page 4

Appendix:

Site Map

Irrigation Calculations

Well Permit

Water Well Drillers Report

- Introduction

The project is a 4 lot residential subdivision with a remainder lot covering a total area of 12.44 acres. It is located on the hillside of Harbison Canyon Road, north of the intersection of Dehesa Road in El Cajon. The proposed lots have a net area of 2.0 acres each. The developed portion of the project site has an area of 3.34 acres. There is an existing well located on Lot 1 that is currently not in use. This report will detail the existing well and its intended use upon the completion of the subdivision.

- Existing Conditions

A 6 5/8" diameter steel encased well was built on the project site in December 1990. It is located approximately 450 feet north and 85 feet east of the southwest corner of the property (see Site Map). The existing well is 600 feet deep with a cement sanitary seal along the first 50 feet. According to the well driller's report, an airlift test was conducted upon completion of the well that yielded a discharge of 18 gallons per minute (GPM) after 2 hours. The well was capped and sealed after it was built and has not been in service since.

- Proposed Conditions

The existing well is located in the southwest corner of Lot No. 1. It is located more than 100 feet from the future septic area on the property. The water from the well will serve as irrigation for the proposed landscaping on the lot. Due to the history of wildfires in the Harbison Canyon area, many succulent and other fire resistant plants will be used as a protective barrier around the new structure. Due to the fact that these types of plants

are able to retain a sufficient amount of water, it is assumed that they will only need to be water two day a week.

- Calculations

It has been assumed that one-half acre of landscaping will need to be irrigated with the water pumped from the on-site well. It has also been assumed that impact type sprinkler heads will be used as part of the irrigation system. Manufacturer performance results for a typical impact sprinkler head were used to calculate the total volume of water used per day. Given the coverage area and flow of the sprinkler, the number of heads needed and total volume of water used per day were calculated. The number of sprinkler heads needed was calculated by dividing one-half acres by the given coverage area. The total volume was then determined by the formula $V=NTQ$, where “N” is the calculated number of sprinkler heads, “T” is the assumed time of irrigation of 10 minutes and “Q” is the given flow rate of the sprinkler.

- Conclusion

The total volume of water per day that will be used for irrigation ranges from 300 to 500 gallons, depending mainly on the operating pressure of the sprinkler head. The well’s flow rate of 18 GPM allows for two sprinklers to operate at the same time without needing an on-site storage tank. The total amount of water produced daily by the well is sufficient enough to irrigate lot 1.

APPENDIX



CARNEVALE SUBDIVISION

Carnevale Subdivision TM 21133

IRRIGATION CALCULATIONS

Assumptions:

Landscaped Area = 0.5 acres

Time of Irrigation = 10 minutes

IMPACT SPRINKLER HEAD	PRESSURE (PSI)	RADIUS (FT)	COVERAGE AREA (AC)	NO. OF NOZZLES	Q (GAL/MIN)	TIME (MIN)	VOLUME (GAL)
RAINBIRD 35A-TNT SERIES SIZE 12 NOZZLE	30.0	44.0	6082.1	4.0	5.5	10.0	220.0
	40.0	47.0	6939.8	4.0	6.4	10.0	256.0
	50.0	49.0	7543.0	3.0	7.2	10.0	216.0
	60.0	51.0	8171.3	3.0	7.8	10.0	234.0
	50.0	57.0	10207.0	3.0	12.9	10.0	387.0
	60.0	58.0	10568.3	3.0	14.2	10.0	426.0
RAINBIRD 65JADJ-TNT SERIES SIZE 16 NOZZLE	70.0	63.0	12469.0	2.0	15.4	10.0	308.0
	80.0	65.0	13273.2	2.0	16.5	10.0	330.0

CITY OF SAN DIEGO
DEPARTMENT OF HEALTH SERVICESWELL PERMIT
APPLICATIONAPN 513-092-15
Control # 1461674

<u>TYPE OF WORK (Check)</u>		<u>USE (Check)</u>	<u>EQUIPMENT (Check)</u>
New Well <input checked="" type="checkbox"/>	Individual Domestic <input checked="" type="checkbox"/>	Rotary <input checked="" type="checkbox"/>	
Repair or Modification <input type="checkbox"/>	Agricultural <input type="checkbox"/>	Cable Tool <input type="checkbox"/>	
Time Extension <input type="checkbox"/>	Industrial <input type="checkbox"/>	Other <input type="checkbox"/>	
Destruction <input type="checkbox"/>			
<u>PROPOSED WELL DEPTH</u> ex. <u>700</u> Min. <u>300</u> (Feet)		<u>PROPOSED CASING</u> Type <u>5 ft</u> Depth <u>120'</u> Diameter <u>7"</u> Wall or Gage <u>188</u>	
<u>PROPOSED SEALING ZONE(S)</u>		<u>SEALING MATERIAL (Check)</u>	
From <u>0</u> to <u>30</u> Feet	Neat Cement Grout <input checked="" type="checkbox"/>	Bentonite Clay <input type="checkbox"/>	
From _____ to _____ Feet	Sand Cement Grout <input type="checkbox"/>	Concrete <input type="checkbox"/>	
From _____ to _____ Feet	Other-Specify: _____		
<u>PROPOSED PERFORATIONS OR SCREEN</u>		<u>DATE OF WORK</u>	
From _____ to _____ Feet	Start <u>12-1-90</u>		
From _____ to _____ Feet	Completion <u>12-4-90</u>		
From _____ to _____ Feet			
From _____ to _____ Feet			
<u>NAME OF WELL OWNER</u> <u>Joel Cloud</u>	<u>NAME OF WELL DRILLER</u> <u>Jim Manos</u>		
<u>LOCATION OF WELL</u> <u>8603 Harrison Canyon Rd CATION</u>	<u>COMPANY</u> <u>Jim Manos Pump & DRILLING</u>		
<u>BUSINESS ADDRESS</u> <u>16052 Lawson Hwy Rd</u>			
<u>DISPOSITION OF APPLICATION (FOR HEALTH OFFICERS USE ONLY)</u>		<u>LICENSE NUMBER</u> <u>360722</u>	
<input type="checkbox"/> APPROVED	<input type="checkbox"/> DENIED	<input type="checkbox"/> Cash Deposit	<input checked="" type="checkbox"/> Bond Posted
<input checked="" type="checkbox"/> APPROVED WITH CONDITIONS		<u>Fee paid on</u> <u>11/26/90</u>	
<p>Report Reason(s) for Denial or Necessary Conditions Here: <u>Well to be constructed in accordance with state and county codes.</u> </p>			
<p>I hereby agree to comply with all regulations of the Department of Health Services and with all ordinances and laws of the County of San Diego and of the State of California pertaining to well construction, repair, modification and destruction. Immediately upon completion of work I will furnish the Department of Health Services with a complete and accurate log of the well.</p>			
<u>James T. [Signature]</u> HEALTH OFFICER 11-26-90 DATE		<u>Jim Manos</u> APPLICANT'S SIGNATURE DATE	

LOCATION

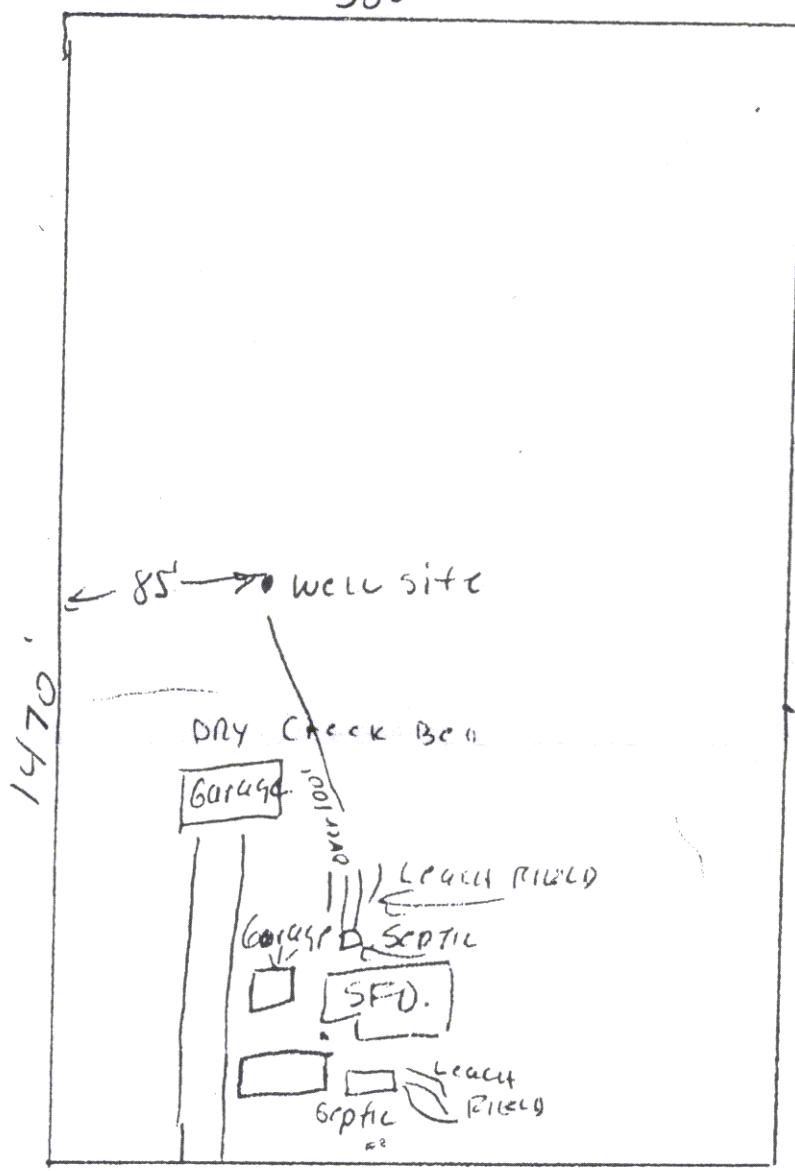
INDICATE BELOW THE VICINITY AND EXACT LOCATION OF WELL WITH RESPECT TO THE FOLLOWING ITEMS: PROPERTY LINES, WATER BODIES OR WATER COURSES, DRAINAGE PATTERN, ROADS, EXISTING WELLS, SEWERS AND PRIVATE SEWAGE DISPOSAL SYSTEMS AND OTHER POTENTIAL CONTAMINATION SOURCES, INCLUDING DIMENSIONS.

Joel & Rita Cloud 445-3550
1863 Harbison Canyon
LOCATION CA 92019

12.4 acres



380'



NO SCALE

Mail Station - A-21

1/10/30/74

ASSESSORS PARCEL NUMBER:

513 092 15

ST CARBON COPY

COUNTY OF SAN DIEGO
DEPARTMENT OF HEALTH SERVICES
1700 PACIFIC HIGHWAY, SAN DIEGO, CA 92101-2417

WATER WELL DRILLERS REPORT

(INSERT under ORIGINAL PAGE w/carbon of State Form)

State Well No. _____

Other Well No. _____

as of Intent No. _____

or Permit No. or Date _____

OWNER: Name Joel & Rita Cloud
 Address 1863 Harrison Cyn Rd
El Cajon Zip 92019

LOCATION OF WELL (See instructions):

City _____ Owner's Well Number _____

Address if different from above _____

Range _____ Section _____

Distance from cities, roads, railroads, fences, etc. _____

(12) WELD LOG: Total depth 600 ft. Depth of completed well 600 ft. from ft. to ft. Formation (Describe by color, character, size or material)

0-2 LOOSE DG

2-29 - RED DG - TO - GRAY DG

29-140 - BLACK ; WHITE ROCK

140-142 - SOFT - PURPLE WHITE ; LIGHT
ORANGE - (2 GPM)

142-200 - BLACK ; WHITE ROCK

200-210 - SOFT - ORANGE - BLACK - WHITE
GREEN STAINS -(1/2 GPM)

210-350 - BLACK ; WHITE ROCK

350-360 - SOFT SPOT - ORANGE ; BLACK
(1/2 GPM)

360-420 - BLACK ; WHITE ROCK

420-421 - SOFT (2 GPM)

421-460 - BLACK ; WHITE ROCK

460-465 - SOFT - GREEN ; ORANGE (2 GPM)

465-515 - BLACK ; WHITE - MORE BLACK
HARDER515-517 - GREEN ; WHITE ; LIGHT ORANGE
(3 GPM)

517-565 - BLACK ; WHITE - HARD

565-566 - SOFT SPOT - GREEN (3 GPM)

566-600 BLACK ; WHITE ROCK

DEPARTMENT USE ONLY

Completed Well Construction:

Inspected _____

Comments _____

or Sample Taken? _____

Attorian's Approval:

(3) TYPE OF WORK:

New Well Deepening Reconstruction Reconditioning Horizontal Well Destruction (Describe destruction materials and procedures in Item (12))

(4) PROPOSED USE:

Domestic Irrigation Industrial Test Well Stock Municipal Other

Equipment:

Saw Reverse Air Bucket

(6) Gravel Pack:

Yes No Size _____

Diameter of above _____

Packed from _____ to _____ ft.

Casing Installed:

Plastic Concrete

(8) Perforations:

Type of perforation or size of screen _____

From ft.	To ft.	Dia. in.	Gage or Wall	From ft.	To ft.	Slot Size
0	50	6.59	.189			

WELL SEAL:

Is surface sanitary seal provided? Yes No If yes, to depth 50 ft.Are strata sealed against pollution? Yes No Interval _____ ft.Method of sealing NEAT CEMENT

(9) WATER LEVELS:

Depth of first water, if known 140 ft.Standing level after well completion 60 ft.

(10) WELL TESTS:

Is well test made? Yes No If yes, by whom? DRILLERType of test Pump Bailer Air lift

Depth to water at start of test _____ ft.

Discharge 10 gal/min after 2 hours Water temperature CoolChemical analysis made? Yes No If yes, by whom?Is electric log made? Yes No If yes, attach copy to this reportWork Started 1/2-1 1970 Completed 1/2-4 19 70

WELL DRILLERS STATEMENT: I hereby declare under penalty of perjury that the information provided in this report is true. This water well was installed in compliance with San Diego County Code and State of California, Department of Water Resources, Bulletin No. 74.

SIGNED

Jim Hansen
(Well Driller)

NAME

Jim Hansen Hansen Drilling
(Person, firm, or Corporation) (Type or Print)

ADDRESS

16052 Lawson Valley

CITY

JamesZIP 92035LICENSE NO. 360722 DATE THIS REPORT 1/2-12-70